VIRGINIA WILDLIFE

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Director's Column

School's Out, But Kids Can Keep Learning

William L. Woodfin, Jr

With the hot days of summer approaching, schools and students across the state will soon be taking a long-anticipated break. However, summer vacation is a time when parents really spend some quality time with their children, time away from the usual hustle and bustle of work, meetings and other obligations that seem to fill every waking hour of one's life.

Because I am a parent, like many of you, I find myself faced with the same questions concerning what to do and where to go each summer. I would like to offer you a few tips that might make this summer one you and your children will always remember.

First, go fishing. One of our goals at the Virginia Department of Game and Inland Fisheries (VDGIF) is to provide a variety of avenues for people to get involved in fishing. If you are new to the sport, the Beginning Angler's Education Kit, developed by the Department's Aquatic Education Program, is available for $15.00. Adults or entire families can learn the ABCs of freshwater fishing with this kit. It comes complete with an educational video, instruction book, fish identification poster, children's workbooks, and more. To help address the question of where to go, we offer the Freshwater Fishing Guide that identifies some of the 176,000 acres in lakes and ponds and over 25,000 miles of streams and rivers.

Second, I recommend wildlife watching. For this, you need only the minimum of equipment—a pair of binoculars will do. Adding to the enjoyment of wildlife watching are the interesting places you may visit, such as the Virginia Creeper trail near Abingdon. This old railroad roadbed winds gently up a mountainside and provides not only great opportunities to see and learn about a variety of birds and other wildlife, but has the makings for a great hiking trip. This is only one of 80 places described in the *Virginia Wildlife Viewing Guide*. This valuable outdoor publication is available from the VDGIF for $3.50 or you may purchase it at local book stores.

Third, there are shooting sports. Whether it's sporting clays, shooting trap or just a little target practice, shooting sports have grown tremendously in popularity over the past few years. Don't wait until hunting season to teach the kids how to properly handle a firearm. There are ranges on our management area at Amelia and several on the National Forest. A day of instruction on the safe and responsible use of a .22 caliber firearm can be an experience that children will benefit from for a lifetime. Another good way to start your shooting adventure is to enroll in a hunter education course taught by VDGIF volunteer instructors. The classes are free and offered throughout the state.

Fourth, there is boating. It doesn't take much to make a day on the water fun. A canoe trip down the James River on some class three rapids, or a lazy sunset cruise on Smith Mt. Lake make for a pleasant and relaxing experience. On the other hand, it doesn't take much to have a bad day either. Because there are no restrictions on who operates a boat, a boating safety course for the whole family can help make your day on the water a safer one. Classes offered by the VDGIF are designed not only to educate, but to help you and your family find another way to enjoy the outdoors.

Now that you have a better idea of some of the great opportunities that await you and your family this summer, I hope that you will join me in making this not only a fun summer but a safe one, as well. □

VIRGINIA WILDLIFE

Cover: *Garlic mustard, an invasive plant native to Europe and Asia. Photo by Hal Horwitz.*
Back cover: *Photo by Soc Clay*

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Dedicated to the Conservation of Virginia's Wildlife and Natural Resources

VOLUME 57 NUMBER 6

In Search of Tro

phy Bass

otos ©Dwight Dyke

Can you "build" an award winning bass fishery? Here's an update on our efforts at Briery Creek.

by William B. Kittrell, Jr.

Are Florida largemouth bass really superior to northern bass? Is there a way to combine the "best" genetic traits from both the Florida strain and the northern strain? Could a trophy bass lake be developed in Virginia by using Florida bass? These questions intrigued Department fisheries biologists during the late 1980s. This was particularly true after a 16 pound, 4 ounce bass caught at Lake Conner in 1985 set the current Virginia state record. Lake Conner was stocked in the mid 1970s with Florida bass, and although the state record was never tested genetically, many presumed that it was a Florida strain fish. An opportunity to perhaps answer these questions presented itself in 1986 when stocking began on Briery Creek Lake.

This Department-owned impoundment could best be described as a "diamond in the rough." In an effort to provide a diversity of fisheries habitat and open-water fishing opportunities, approximately 200 acres of unmarketable timber in the lake basin was felled and "drum-chopped." Over 400 acres of the lake basin was left in standing timber. The remaining acreage consisted of open-water areas created by the flooding of beaver ponds and fields. Although this much underwater structure would make for tough fishing, its purpose was to provide valuable permanent fisheries habitat. The result was largemouth bass heaven.

The stage was set in 1986 to begin a large scale experiment in an 845-

acre aquatic laboratory. There had been some concern about how well pure Florida bass would survive and perform in a latitude this far north. Biologists were worried that the Sunshine State's bass would succumb to the harsher winters that routinely occurred in Virginia. Since so much was at stake, the decision was made by biologists to stock both strains. The hope was that the resulting hybrids would have the growth and large size potential of the Florida strain as well as the ability to survive Virginia winters like the northern strain. During 1986 and 1987, an experimental mix of Florida and northern largemouth bass was stocked at a 3:1 ratio. Other species including bluegill, redear sunfish, black and white crappie, and channel catfish were also stocked. Preopening samples indicated the bass population was developing well, with many fish in the 16–17 inch size range. To protect the population from overharvest, a restrictive 18-inch minimum size limit with a two bass daily creel limit was imposed.

The lake opened with much fanfare from the angling community in 1989. A creel survey during that initial year estimated that over 12,000 boat fishing trips were made on the lake, and fishermen's success was good. Anglers averaged catching over one fish per hour. Excellent bass reproduction and recruitment were occurring. However, biologists began to see a problem developing. The size and creel limits were proving to be too restrictive. The size structure of the population appeared to be stockpiling around 11 inches. Although fishermen were catching lots of bass, they were small. A more traditional management technique was needed to thin the population. A 12 to 15-inch slot limit with a five fish per day creel limit was imposed January 1991. The purpose of the slot limit was to reduce the number of small bass (less than 12 inches) while protecting the intermediate-sized bass (12 to 15 inches), with the expectation that they would grow beyond 15 inches and develop into a trophy fishery.

In the meantime, researchers from Virginia Tech were trying to answer the genetic questions. The Department had initiated a two-year cooperative research study with Virginia Tech beginning in 1989 to evaluate the experimental mix of Florida/northern strain bass. The project objectives were to compare the attributes of the Florida and northern bass and their offspring. A clear picture of what was happening genetically in the lake was muddled by several factors. First of all, out of 79,600 bass stocked in 1986, only one from that year's class was collected during sampling by Department and University researchers. Where had all those bass gone? Had they been killed in a sudden and lingering cold snap in December of 1989, which left Briery Creek Lake frozen over for three weeks? Were these fish more adept at evading electrofishing gear in this flooded forest? No one knew. The other complicating factor was that Florida/northern hybrids dominated the 1987–1990 year classes. This indicated that one or both of the founding stocks may have been impure strains.

Soc Clay

A little explanation may be necessary at this point for those of us who are not geneticists. There is only one species of largemouth bass, referred to in this article as the northern strain. The Florida bass is a subspecies that occurs throughout south Florida from Lake Okeechobee northward to central Florida.

From central Florida northward through Georgia, the Carolinas and probably into Virginia is a zone of intergrades or Florida/northern hybrids. North and west of Virginia pure northern bass typically occur. When Briery was stocked originally, the bass were thought to be pure strains. However, they were never tested by electrophoresis, the only definitive way to tell whether a bass is pure Florida or northern. The northern bass came from Indiana and were likely to be pure northern bass. The Florida bass came from the St. Johns River in central Florida and could have been produced from Florida hybrids. As a result, no definite conclusion could be drawn from the Briery Creek Lake bass stocking study conducted by Virginia Tech.

All this made no difference to fishermen who had begun to wet their appetites on some respectable size bass coming out of the lake as early as 1990 and 1991. Then 1992 rolled around, and by the end of that spring, Briery Creek Lake was the talk of the angling community not to mention a sweetheart of the sportswriters. Five bass over 11 pounds had been caught at Briery, topping all other lakes in Virginia that year.

Biologists at Briery had known that trophy bass were growing in the lake based on samples collected by electrofishing. As early as 1991, three bass between 7 and 8 pounds had been taken in the samples. Then in 1993 and 1994, respectively, a 9 pound, 5 ounce and a 10 pound, 13 ounce bass had been captured and released. Their main concern was that most of the bass population was still 12–15 inches long. This meant that there were numerous small to intermediate size bass feeding on the bluegill forage base. Heavy predation on small bluegill resulted in excellent growth for the lucky ones that escaped being eaten by the hordes of hungry bass.

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Above: *Wildlife Biologist Senior, Pat Keyser, checks depths of navigation channels cut for boaters at the lake, while District Fisheries Biologist, John Copeland records the information.*
Top right: *Pat Keyser records wood duck nesting success at one of the many nest boxes installed at Briery Creek Lake.*
Right and left: *The trophy largemouth bass, caught at Briery Creek Lake, are the result of Department fisheries biologists applying scientific knowledge in the development and management of the lake.*
Far right: *Scale samples taken from largemouth bass at Briery Creek Lake during the late 1980s showed that the fish were growing slower than normal.*

J.R. Copeland

J.R. Copeland

This turned into a bream bonanza for bluegill fishermen. Citation sunfish started to appear at Briery Creek Lake, and soon much of the attention had turned from bass to bluegill. Anglers were flocking to the lake with everything from cane poles to fly rods to cash in on the fast and furious bluegill action. However, sampling in 1994 indicated the bass slot limit was working. An increased harvest on small bass meant reduced predation on the bluegill population. With the numbers of bluegill increasing, there was more competition for food and growth

slowed. Due in part to the effectiveness of the slot limit on bass, the number of trophy bluegill catches seemed to taper off somewhat by 1994.

This was when a 13 pound, 13 ounce lunker bass, the largest reported in Virginia that year, was landed at Briery. During 1994, four bass over 11 pounds including the 13 pound, 13 ounce bass were analyzed electrophoretically. Results of the Virginia Tech tests indicated all four had some degree of Florida strain background. Three were considered to be Florida hybrids, while a definitive genetic identification of the fourth was impossible. The two fish in the 11-pound range that were aged appeared to be younger than the age of the bass originally stocked in the reservoir. This meant they were likely the result of reproduction. Again the news about Briery spread and anticipation for the 1995 season was building.

Then in March, April, and May of 1995, an unbelievable streak of Virginia Angler Awards (formerly known as citations) were reported. Over 30 weight awards (greater than 8 pounds) and over 10 length awards (greater than 22 inches) were submitted, including a massive bass weighing over 16 pounds! This trophy fish just barely missed breaking the 1985 state record considered to be the Holy Grail by many Virginia anglers. Biologists and anglers alike can only speculate about what the 1996 season may hold. As of the time this issue went to press, the 1985 Lake Conner state record continued to stand.

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Top: Submerged aquatic vegetation such as this wild celery provide habitat for small fish and food for waterfowl and they prevent unwanted aquatic vegetation from becoming established in the lake.
Above: Launching a boat at Briery Creek Lake is made easy by the concrete boat ramp near the dam. Because the lake is 845 acres, the Department allows the use of gasoline motors up to 10 horsepower. Boaters are cautioned to go slow in case they tangle with any fallen timber.

Biologists theorize that two basic factors may be working together to benefit the bass population in Briery Creek Lake. The first is the "new lake" effect. Whenever a reservoir is formed, there is an initial boom in the fishery. The early year classes of fish have an abundance of food and available habitat at their disposal with very little competition, and they experience phenomenal growth. As the impoundment ages and more competition occurs, growth rates slow somewhat and an equilibrium in the population is achieved. This boom has undoubtedly occurred, and Briery Creek Lake may be in its best years for producing numerous trophy bass.

In addition, the bass may be benefitting from "good" genes; however, to what extent genetics are impacting the population is still unclear. Most of the attributes of Florida bass or their hybrids are evident later in life. This means that trophy bass (preferably over eight pounds) must be checked genetically, and samples in this size range are not readily available. This is where fishermen may be able to help the biologists at Briery. Although anglers are encouraged to release trophy bass, some may want to keep their trophies for mounting purposes. Those choosing to do so should contact the Department of Game and Inland Fisheries as soon after their catch as possible at the following address: Attn: Dan Wilson, Fish Division, Department of Game and Inland Fisheries, H.C.6, Box46, Farmville, Virginia 23901, 804-392-9645. Specimens must be kept frozen. Those determined to be suitable for testing will be aged, and a small amount of liver tissue will be removed for electrophoresis. This process will not affect the final appearance of the mount in any way.

The bass population at Briery Creek Lake has developed well since it was initially stocked 10 years ago. However, the verdict is still out on the long-term effect of stocking the experimental mix of Florida and northern bass. More genetic work must be done before conclusive answers can be provided. Then and only then will we know what, if any, applications those answers may have on other Virginia waters. There is one thing that Department biologists are certain about. The notoriety that Briery Creek Lake has obtained will continue for some time, as will the search for trophy bass. □

William Kittrell was formerly a fisheries biologist supervisor in the Farmville Field Office and is now Regional Fisheries Manager in Marion.

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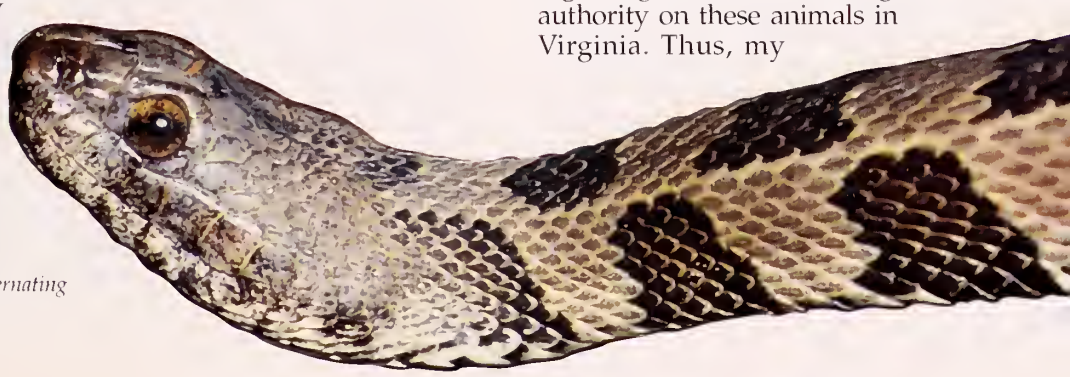
Does It Bite?

Will that "thing" that just fell into your boat gnaw, nibble or nip on your hide? Here's the answer.

by Joseph C. Mitchell

My brothers, brother-in-law, and several cousins are avid fishermen. Their favorite form of recreation is to spend long periods of time on a boat searching for that big largemouth bass or sunfish. In doing so, they also enjoy the natural beauty of Virginia's lakes and rivers and observe the many other forms of wildlife associated with these habitats.

I, myself, am not a fisherman. When I was a kid I found that I enjoyed hunting for frogs, snakes, and turtles more than sitting in a boat waiting for a fish to bite. That early interest in nongame wildlife stuck with me and resulted in my becoming recognized as something of an authority on these animals in Virginia. Thus, my



Right: *Brown watersnake with alternating dorsal and lateral dark brown blotches. Photo by R. W. VanDevender.*

fisherman friends and relatives frequently ask me questions about a snake or turtle they see when they are out doing what they love best. Some are genuinely interested in learning about the natural history of the animals they observe, whereas others, like my brother-in-law, are deathly afraid of snakes and want to know what kind of danger they may be in.

People who spend any time around freshwater, especially men and women who fish, encounter snakes and turtles sometime during the course of their recreational experience. They are almost never in any danger from these usually secretive animals. It is more often the case that the animals themselves are in more danger from the humans. This is due to the culturally-instilled and perhaps innate fear of snakes that prompts people to kill first and ask questions later. Turtles usually fare better, except for those who happen to get caught on a baited hook or find themselves in the sights of someone who likes to shoot anything he sees.

By far, the most common concern of fishermen in my experience is whether or not the snake they saw was "poisonous." My first response to such questions is "Where were you fishing?" The most likely "poisonous" snake a fisherman may see in freshwater habitats in Virginia is the eastern cottonmouth *(Agkistrodon piscivorus)*. However, eastern cottonmouths occur only in southeastern Virginia. These snakes may be encountered east of the Dismal Swamp National Wildlife Refuge and occasionally in isolated areas of Surry and Southampton counties, the confluence of the Appomattox River and Swift Creek, and the upper end of the Newport News Reservoir. They do not occur statewide. Cottonmouths are more common in the Deep South where they inhabit a wide array of freshwater habitats mostly associated with slow-moving water.

Trying not to be too academic, I also note that the word "poisonous" is often misapplied to cottonmouths and other snakes that inject their venom into prey through hollow fangs. The correct term is "venomous." Poisonous animals are those whose body parts, especially skin, contain glands whose secretions cause irritation to mucous membranes, like eyes, and open cuts in the skin. More serious reactions occur if the animal is ingested by a would be predator. Examples of poisonous animals from Virginia that may be found in freshwater habitats include toads (in the genus *Bufo*) and red-spotted newts *(Notopthalmus viridescens)*. Unlike most other salamanders, newts often occur in ponds with fish because fish learn that larval and adult newts are distasteful. Newts will definitely not make good bait.

The snake most often seen by fishermen in Virginia's fresh waters is the northern watersnake (*Nerodia sipedon sipedon)*. This is a widespread

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Above: *Head of the eastern cottonmouth showing the sheathed, unextended fangs in the roof of the mouth.* ***Right:*** *Basking yellow-bellied sliders often pile atop one another on logs and banks.* ***Lower right:*** *The northern watersnake, like other snakes, use their tongue for smell and taste.*

R. W. Van Devender

Bill Lea

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Top: *Stinkpot or common musk turtle with two bright stripes on each side of the head.* ***Middle:*** *Eastern painted turtle with two yellow patches on the head and neck.* ***Above:*** *Red-bellied turtle with the serrated jaws used for cutting vegetation.*
Right: *Spiny soft shell turtle with the leathery shell.*

species occurring throughout much of eastern North America, and indeed throughout Virginia. There are several recognized geographic races; the one in our area is the nominate race, indicated by the same species and subspecies names in the trinomial.

Water moccasin is the name used most often for this species and by many people for any darkly-colored snake associated with water. It implies that the snake is venomous. Northern watersnakes, however, are not venomous. They obtain their food by catching and holding on to slippery prey, like frogs and catfish, with their long teeth. They do not constrict like rat snakes and they do not inject saliva. They swallow their prey alive and let their digestive enzymes do the killing. I have been bitten by numerous northern watersnakes and although those long teeth draw copious quantities of blood, I have never experienced irritations nor infections from the saliva.

Fishermen can distinguish northern watersnakes from cottonmouths in southeastern Virginia by learning the differences in color, pattern, and body shape. Cottonmouths possess 10–23 black, broad bands draped across the olive to yellowish-olive body. Northern watersnakes have black to reddish brown crossbands on the anterior half of the brown body and similarly-colored blotches on the posterior half. These total 24–39 in number. Both species can be nearly all black or their markings obscured by dark water, sun's angle, or a faded skin that is about to be shed. In such cases identification can be based on the presence of a somewhat chiseled-shaped head and heavy body in cottonmouths and a chunky, rounded head and relatively thinner body in watersnakes. In addition, most of the body of a swimming cottonmouth rides on the water's surface, whereas only the head and part of the neck of a northern watersnake is exposed. Most of their body is below the surface.

Maslowski Photo

Another watersnake seen commonly by fishermen in the southeast is the brown watersnake *(Nerodia taxispilota)*. Its range is similar to that of the cottonmouth, with the additions of the Chickahominy, James, and Pamunkey rivers in the Coastal Plain. This large, brown snake has a series of alternating square-shaped, dark brown blotches on the back and sides. It is often seen basking in overhanging vegetation. This species also has long teeth for catching its fish prey. It is not venomous.

All three species mentioned thus far have been known to drop into a passing boat from a perch site above the water, although this rarely occurs with cottonmouths. This action is part of their escape behavior. Dropping into a boat is not intentional on their part; it just happened to be there. The snake is more intent on getting out than biting the fisherman. If this happens to you, simply let it or help it get overboard. The probability of your being bitten is almost nil. Just don't restrain it or try to pick it up. If you do, you'll find out just how long those teeth are.

Some of you have also experienced turtles dropping into your boat. The most likely species is the stinkpot or common musk turtle *(Sternotherus odoratus)*. This is a small (to 5 inches shell length), dark

brown turtle with two light stripes on each side of the black head. They are known to climb into branches that overhang rivers and streams; they do not normally bask in open sun. Like watersnakes, they will drop off their perch when disturbed and fall into a boat if it happens to be there. Scoop them up with a net or pick them up near the rear end to get them out. They, like all turtles, have no teeth, but they can pinch pretty hard. Stinkpots get their name from the fact that the four glands beneath their upper shell, the carapace, emits a foul smell that deters potential predators.

Several other species of freshwater turtles are often seen basking on logs and snags in rivers, ponds, and lakes. The most common of these is the eastern painted turtle *(Chrysemys picta picta)*. It occurs statewide and in my experience is the most abundant turtle in the Commonwealth. These rather flat shelled, olive-colored turtles are less than seven inches in total shell length. The red markings around the border of the shell and two yellow spots on each side of the head distinguish this from other basking turtles. Painted turtles will frequently pile atop one another on a good basking site.

An associate of the painted turtle in the Coastal Plain and on the Eastern Shore is the red-bellied turtle *(Pseudemys rubriventris)*. This completely herbivorous species reaches a maximum shell length of about 15 inches. These turtles are dark olive brown with a vertical reddish stripe in each of the broad plates (scutes) on both sides of the upper shell and several thin yellowish stripes on the black head and neck. They occur in most forms of freshwater habitats and may even be found in brackish water. A friend once found one in Norfolk with barnacles on its shell.

Fishermen in the southeastern corner of the Commonwealth also encounter yellow-bellied sliders *(Trachemys scripta scripta)* alongside painted and red-bellied turtles. These are also large basking turtles, reaching a total shell length of 11 inches. Their olive-brown shells have vertical yellow stripes and the greenish skin on the head and neck bears yellow stripes and either a vertical yellow bar or a reddish patch behind the eye. Those with distinct yellow bars are descendants of the native subspecies, whereas those with the reddish patch are descendants of the subspecies introduced from the lower Mississippi region during the days of the dime store turtle in the plastic bowl with the palm tree. In many places now in southeastern Virginia the turtles seen there are crosses between these two forms.

R. W. Van Devender

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Far left: *Juvenile common map turtle with the light lines (road map) on the shell.* ***Top:*** *Juvenile yellow-bellied slider with the yellow patch behind the eye.* ***Above:*** *Aquatic stripe-necked musk turtle with numerous yellow and black lines on the head.* ***Left:*** *River cooter with concentric circles on the shell and yellow stripes on the head and neck.*

The Florida cooter *(Pseudemys concinna floridana)* occupies parts of the southeastern Coastal Plain south of the James River and west of the Dismal Swamp, whereas in the Virginia piedmont the only large basking turtle is the river cooter *(Pseudemys concinna concinna)*. These turtles are sometimes difficult to identify and one should refer to a good published source to be sure of your identification. The rule of thumb in the

Piedmont, however, is that the likely identification of any basking turtle over 8 inches is the river cooter.

The southwestern portion of Virginia is home to the Cumberland slider, a close relative of the yellow-bellied slider, and the river cooter, although it's uncommon. This area is unique in the Commonwealth because it also has common map turtles *(Graptemys geographica)*, spiny softshell turtles *(Apalone spinifera)*, and stripe-necked musk turtles *(Sternotherus minor peltifer)*. Common map turtles are the most frequently seen basking turtles in the rivers of the Tennessee drainage. They can be distinguished from the other freshwater turtles in the area by their brown to olive shell, numerous yellow stripes on the olive neck, and the small yellow patch behind each eye. Females (to 11 inches) are much larger than males (to 5 inches). Spiny softshells are larger but they are flat like pancakes and have no hard shell. They look like dinner plates with long necks and pointed snouts. Stripe-necked musk turtles, like stinkpots, seldom bask. Both species occur in this region. Stripe-necks have numerous yellow stripes on a black neck in contrast to the two head stripes on stinkpots. Both are more likely to be encountered when they take your bait and get hooked in the process. Unfortunately, many get beheaded as a result, I presume because fishermen do not want to hold the turtle to remove the hook.

R. W. Van Devender

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The other species fishermen encounter periodically is the common snapping turtle *(Chelydra serpentina)*. It occurs throughout the Commonwealth, is big (to 50 pounds I hear), prehistoric looking, and occurs in all manner of freshwater habitats. It basks only rarely, preferring to sit or forage along the bottom for anything it can catch and tear apart. This is the only species allowed to be harvested commercially and taken for private use. It is good to eat. Its biology is described in greater depth in the August 1993 issue of *Virginia Wildlife*.

I doubt that I completely allay my brother-in-law's fear of snakes, but I think he is more aware that what he sees is not venomous and not out to get him. I also think that some of my friends and relatives genuinely appreciate snakes and turtles more these days. Like fish, snakes and turtles are integral parts of Virginia's freshwater habitats. Of all recreational opportunities in the Commonwealth, fishermen get to experience them more than most. □

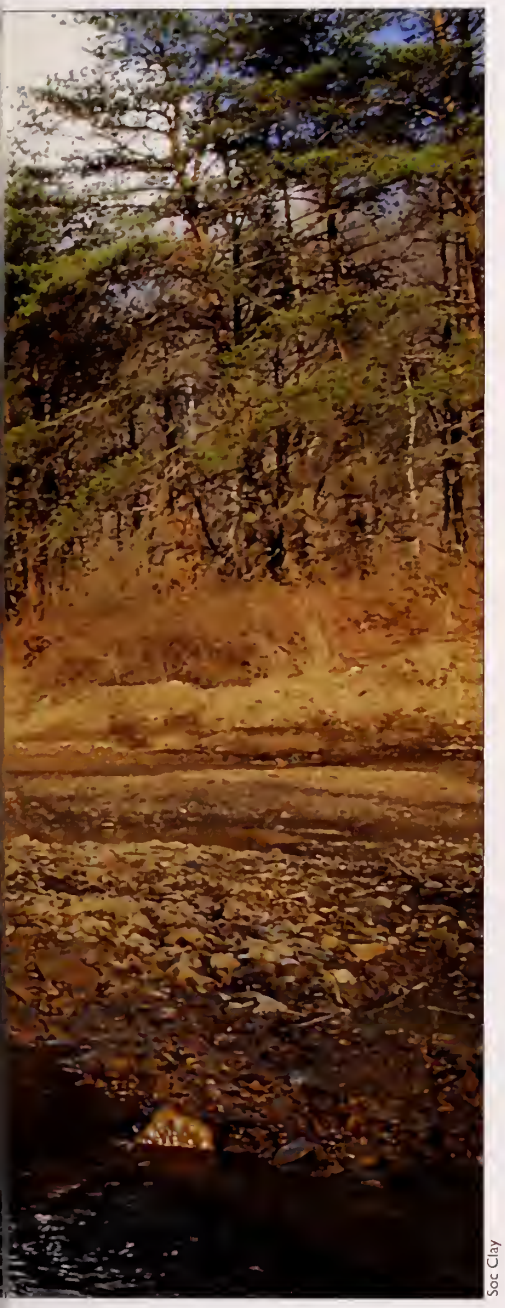
R. W. Van Devender

Joseph C. Mitchell teaches conservation biology at the University of Richmond and is the author of The Reptiles of Virginia.

Top: *Common snapping turtle, a game species, is found statewide.* ***Middle:*** *Most children are fascinated by turtles. Experiencing a variety of species and sizes help these children gain an appreciation for the reptilian inhabitants of Virginia's freshwater habitats.* ***Left:*** *The immature, terrestrial stage of the red-spotted newt is colored brightly to warn would-be predators of their distastefulness.*

For Fishing Variety Take to the River

Virginia has a diversity of rivers, each with its own collection of fish.



Soc Clay

Smaller warmwater rivers offer good wading for smallmouth and other sunfish.

by Bob Gooch

"Old man river, he just keeps moving along." Those words from a popular song of yesterday say a lot about a river—or any stream. All flow constantly, sending their waters eventually to the oceans of the world. In Virginia that means the Atlantic. Or the Gulf of Mexico for many southwest Virginia streams.

Moving water. Grasp an understanding of it and you are well along toward being a good stream fisherman.

That is much of what I like about fishing streams. The water moves constantly. Even in tidal streams there is the ebb and flow of the tide. The ability to understand that movement of the water is the heart of stream fishing, for with it comes the ability to read a stream.

Probably the major reason I like stream fishing, however, is that I learned to fish in the gurgling waters of a delightful little creek that flowed through the family farm in Fluvanna County. It's still there, of course, still flowing and still charming. But like so many boyhood memories it pales today in comparison to many of the more famous streams I have fished since. It has lost some of the luster that filled the days of my youth with joy.

There are all kinds of streams and you'll find most of them in Virginia. At one extreme there are the big eastern tidal rivers and at other the tiny trickles high in the mountains, real treasures, our wild trout streams. In between there are mighty rivers, meadow creeks, fast rivers that challenge white-water canoeists, slow coastal plains creeks or rivers, cricks, runs, guts, and so on. Even spring branches.

All of these streams offer fishing, but here we have to be more specific. Not nearly enough room to talk about fishing techniques peculiar to all of them.

My favorite stream is one I can wade. While I like to fish streams by canoe, johnboat, or even larger craft, I'm happiest in chestwaders with the pressure of the water clamping my boots against my legs. Such streams are obviously too small for canoeing or floating in a johnboat, though I occasionally do so. As the years pass, however, I no longer relish the thoughts of dragging a boat or canoe through shoals and over sandbars. Wading that same water is easier. And it can be more productive. The angler and his quarry become more intimate. He gets in there with the fish, shares its domain.

Nor do I want a stream so small that it offers nothing but tiny minnows. The size of the fish you find in small streams, however, is surprising. This is particularly true of streams that hold good pickerel populations. The skinny fish can make their way far up amazingly small streams, streams you can straddle.

Most of our trout streams are wadable, of course, but that's another story. Here I'm thinking primarily of warmwater streams, the homes of a wide variety of fish—both largemouth and smallmouth bass, spotted bass, several kinds of sunfish, particularly the spunky little redbreast sunnie, fallfish, an occasional crappie, many chain pickerel, catfish, and even suckers which I rarely fish for.

Streams that come to mind include the North Fork of the Holston upstream from Saltville, the South Fork of the Holston, the North Fork of the Shenandoah, Mechunk Creek, a major tributary of the Rivanna River, the North Fork of the Rivanna, the upper reaches of the Appomattox, Little Walker Creek that flows into Walker Creek, a tributary of the New River, Byrd Creek that flows into the James River and so on. There are hundreds of such streams from the rolling Piedmont region west. Many are on private land. If so, ask for permission to fish them. These streams are seldom heavily fished and permission is usually granted.

Ideally, the angler should select a stretch of the stream and fish through it. This means a shuttle of sorts. Leave your vehicle at one end of the stretch and have someone drop you off at the other. Otherwise you'll have to return to the starting point. This means covering the same water twice, fishing upstream first and then down, or vice versa.

Fish upstream or down? Which is best? I've fished successfully both ways, but logically you should fish upstream. For several reasons.

Stream fish look to the current for much of their food. This means they normally rest with their heads up-

stream, facing into the current. As you move slowly upstream you approach the fish from their rear. Less likely to spook them. Fishing upstream also means your profile will be less of a problem because you are approaching from a lower elevation. Not much maybe, particularly in streams with a low degree of gradient, but it can make a difference.

When you cast upstream, you retrieve your lure downstream facing the fish. The larger fish will watch it approach and let the current do the work, bringing the food to their lair. A lure retrieved upstream, however, may pass the fish before it is seen. The fish will have to give chase, something the real lunkers are not always inclined to do. They don't have to.

If you kick up sediment and muddy the water as you wade upstream the colored water will flow away behind you, whereas if you are moving downstream it will move ahead and discolor the water you plan to fish. A trade-off here is the possibility that the sediment floating with the current might trigger a feeding spree—just as does a sudden rain washing debris and food into the current. But you can't have it both ways. I like the upstream advantages.

Recognizing key spots in a stream is also vital to fishing them. The axiom that 90 percent of the fish live in 10 percent of the water is probably less applicable to streams than to lakes, but certainly stream fish also have their preferred water. Such preferences, however, are much more obvious. And you don't need fancy electronic equipment to find them. They're right there before your eyes, as obvious as an open book.

Stream fishermen have their preferences, but most will agree that the head of a good pool where the water pours in from upstream rapids or riffles is a choice spot. The water sweeping through the shoals, or the shallow water of rapids and riffles, stirs up food and dumps it into the pool. The fish know that and wait there for their daily rations. Such water is likely to furnish action regardless of the size of the stream.

Another reason to fish upstream. As you approach the stream from downstream, the water is easier to recognize. You step into the tail of the pool and there before you is the pool, its head where the water pours in, and a clear view of the rapids or riffles above it. The fish are often out in the tail of the pool, shallow water—feeding. Work that first before moving into fish the head. Trout fishermen have used this approach for years.

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Soc Clay

Left: *Coldwater streams provide fly fishing for brook, rainbow and brown trout.*
Above: *A well-placed fly can elicit this kind of rod bending action.*
Background photo by ©Dwight Dyke.

Most wadable streams are basically an alternating series of riffles and pools. The pools of course will vary in size and depth and the fast water will vary in intensity—though not as often in warmwater streams.

I also love eddies. The water pours into a pool, hits a bank, boulder, log or some other obstacle and is shunted out into midstream. It sometimes reverses itself completely. A back eddie some call it. An eddie is a top spot to catch fish. The rushing water is temporarily arrested and food in the current is suddenly suspended. This means easy feeding for the fish. A lure dropped into that rushing current and allowed to come tumbling into the eddie where it is temporarily suspended is a surefire opportunity for a stream fisherman.

I find the long pools more difficult to read. The head of the pool is no problem, but what about all of that flat water that stretches downstream toward its tail? It's not unlike the flat, secretive surface of a lake. I look for boulders, piles of debris, beds of weeds, fallen trees, logs—anything that can provide cover, particularly for small fish, protection from the sun, and a place to rest out of the current. A few years ago I was fishing a long, quiet pool in small wadable stream and noticed a large sycamore on the bank with its roots extending out into the water. I dropped a small surface lure there as quietly as I could, and even before I could flip the bail of my spinning reel I was rewarded with an explosive strike. A few minutes later I was admiring a 3-pound largemouth bass.

In a cool, well-shaded pool the fish can be anywhere. I try to cover the entire pool, but concentrate on the likely cover as described earlier.

An undercut bank is also well worth investigating. They are often found near the head of a pool where the water rushing in from upstream hits an unyielding bank and in time churns out a deep undercut. This is an ideal place for fish to rest. The bank overhead protects them from predators and the sun, and the current brings them food. Undercut banks are hard to fish. You have to use the current to get your lure back there beneath the bank. And at the proper depth so the current will take it beneath the bank instead of bouncing it against the bank and back into the current.

One of the joys of fishing a stream during the hot summer months is the natural shade that envelopes most of them. Trees in their full foliage shield you from the sun. Fish also dislike the glare of sunlight which tends to expose them to predators from the air. They are more inclined to be active throughout the day instead of just at dawn and dusk. Timewise you enjoy a lot of flexibility. The fish may feed just as actively at noon as at dawn.

My preference for fishing small streams is a surface lure. Here the choice is wide—ranging from popping bugs on a fly rod to surface lures cast on baitcasting tackle. We are talking about water that probably averages one to three feet in depth, very clear water where the fish's visibility is almost unlimited. Rising up to take a sputtering surface lure is a natural thing.

Because small streams tend to be shallow and crowded with trees and other vegetation, stream fish feed more heavily on the top than do lake fish. The list of possible foods is almost endless—a young bird falls from a streamside tree, a duckling strays from the flock, a frog swims frantically for the bank, a wayward mouse struggles in the current, bugs and worms are washed in on the current, a tiny squirrel falls and splashes on the water, a dragonfly falters and hits the water, and so on. Make your surface lure imitate these and other struggling critters and you'll experience some explosive topwater action.

You can take your choice between baitcasting, spinning tackle, or a fly rod. All will work. Generally baitcasting lures are too large, however, for the average small stream fish. The smaller spinning lures drop more quietly on the surface and have more appeal for many stream fish. A fly rod is fine except that bank and overhanging vegetation might hamper your back cast. That leaves spinning tackle and it's my first choice. No back cast problem and it will handle smaller lures that are usually appropriate for small streams. I like a 4 to 6-pound test line. In the thin water where the visibility is high, the lighter the line the less conspicuous it will be to wary fish.

Peace and tranquility. You'll find them on small streams. That is until a hungry fish smacks your topwater lure. Maybe that's why a good strike seems so explosive. It disrupts the tranquility you may be seeking. But that's what you're there for.

I'll gladly give up that peace and tranquility temporarily for that unmatchable angling thrill. ☐

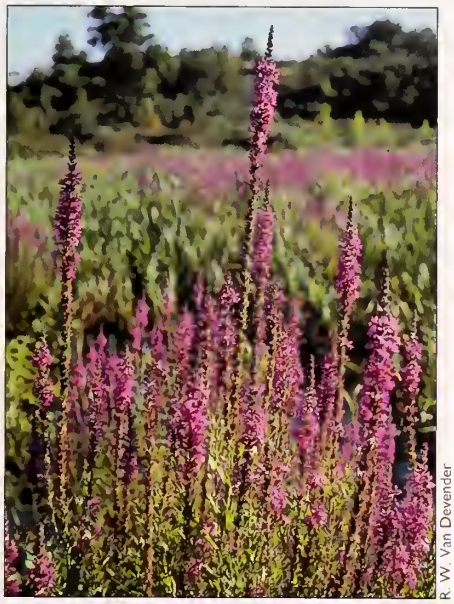
Bob Gooch is a freelance writer and frequent contributor to Virginia Wildlife.

Invasion of the Habitat Snatchers

By Nancy Hugo

When most of us think of invaders, we think of armed men in boots, but the invaders threatening the Virginia countryside are attacking with seeds and roots. Invasive alien plants are what botanists call these plants introduced from other countries that are wresting territory from native plants and spoiling habitats for wildlife. Some of them are well-known—like kudzu and Japanese honeysuckle. Others are little-known, like nipplewort and sickle pod. And some, like purple loosestrife and English ivy are prized by gardeners who have no idea that, under some conditions, their cherished ornamentals can behave like terrorists.

Let's first clear up what an invasive alien plant is. It's the botanical equivalent of a Japanese beetle or gypsy moth—a plant that was introduced from another country and that, in the absence of natural checks and balances that kept it under control in its native country, spreads like wildfire here. Of the approximately 2500 vascular plant species in Virginia, about 350 of them are alien, meaning not native to the state. Some of those alien plants have naturalized in the countryside and reproduce there so happily we've come to think of them as native wildflowers. Oxeye daisy, Queen Anne's lace, and buttercups, for example, are all alien plants, but, although even they can be troublesome to farmers, they're not invasive enough to fit the category of plant we're talking about here. Chrysanthemums and marigolds are also alien plants, but they don't jump garden fences and reproduce like rabbits in the wild.


R. W. Van Devender

Often crowding out native species, plants from around the globe now live freely in Virginia.

The defining characteristics of invasive alien plants are these:

- they grow fast and mature rapidly
- many of them produce an enormous number of seeds
- many of them spread rapidly from roots or runners
- they can out-compete native species
- they are expensive to remove and control

On the list of Invasive Alien Plants of Virginia are over a hundred plants that exhibit some or all these characteristics, and 30 of them are considered especially troublesome. Among them are some plants about which it's easy to get an argument going ("What else could I have used to stabilize an eroding bank?" "That plant's not invasive in my yard."), but whether you've seen it or not, evidence exists that all the plants listed [on page 25] can damage ecosystems. What they do is this: Invasive

Left: *Garlic mustard, an invasive plant native to Europe and Asia, quickly dominates the forest floor in woodlands where it has naturalized.*
Above and right: *Purple Plague is the name applied to purple loosestrife,* Lythrum salicaria, *a plant which, in disturbed wetlands, chokes out plant species more valuable to wildlife. Don't confuse it with the rare native wildflower,* Lythrum alatum, *which is usually shorter and has fewer, more widely spaced flowers*

R. W. Van Devender

aliens, which are generalists and can live almost anywhere, replace sensitive native species which require more specialized habitats. As a result, their spread threatens biodiversity—the rich mix of plants and animals that keeps our ecosystem healthy. Some biologists refer to these plants as "biological pollutants" because of the ecological damage they can do.

The spread of invasive alien plants concerns wildlife managers because when these plants invade wildlife habitats, they often displace native plants with greater wildlife value. Common reed, tree-of-heaven, purple loosestrife, and tall fescue provide cases in point.

Purple loosestrife, a perennial plant with flowers prized by gardeners, was introduced to the northeastern U. S. in the early 1800s. Since that time, it has spread west and south into thousands of acres of wetlands, crowding out cattails, native grasses, sedges, and rushes—plants important to waterfowl and other wetland species. "You name it—any wetland species from bog turtles and muskrats to marsh wrens—they're all negatively affected when purple loosestrife spreads," says Steve Capel, Farm and Wetland Supervisor for VDGIF. "I've got nothing good to say about it."

Not only does purple loosestrife spread fast—a single plant producing as many as 300,000 seeds—it forms dense stands with as many as 80,000 stalks per acre. These dense, single-species stands replace the diverse mixture of native plants that previously provided food and shelter for a wide variety of wildlife. These stands are startlingly beautiful—showy spikes of magenta flowers top every 2–10′ stalk, and sometimes these flowers spread as far as the eye can see, but in this case, beauty is a beast, because purple loosestrife threatens wetlands with disturbed soils (undisturbed wetlands seem to have a "natural immunity" to it). "Purple Peril" and "Purple Plague" are names ecologists use to refer to this species of Lythrum, *Lythrum salicaria.*

In Virginia purple loosestrife is widely distributed. It has invaded disturbed wetlands in the northern part of the state and can be found along the naturally disturbed edges of the James River and its tributaries, along the Potomac, and along tributaries of the Jackson and Clinch

Above and left: *In the summer, you can recognize common reed* (Phragmites australis) *by its gray-green, sheath-like leaves and its purple-brown plumes. The plants turn tan in the fall and lose most of their leaves, but their shoots are still plume-topped.*

Far left: *Tree-of-heaven* (Ailanthus altissima) *This small-to-medium-sized tree not only grows fast, it grows where other trees won't. Because it grows so quickly it outraces native species competing with it for sunlight and space.*

Photos by David Liebman.

Rivers. It grows wild in 28 counties and in gardens all over the state.

If you have it in your garden should you pull it out? That's a matter of debate. Although some gardeners buy varieties of purple loosestrife that are reported to be sterile and unable to reproduce in the wild, recent research suggests there's no such thing, and the Virginia Department of Agriculture and Consumer Services says: "Do not buy purple loosestrife in any form, even those plants labeled sterile." Some gardeners argue that they can control the purple loosestrife in their gardens. That may be true if their gardens are nowhere near a wet meadow, marsh, riverbank, pond, or reservoir, but don't stand beside the purple loosestrife at the edge of your pond and argue that you can control the spread of this plant. Unless you have sieves across your streams and overflow pipes to remove floating seeds, you can't.

Susan Glascock

Joe Mac Hudspeth Jr.

Another plant that typifies problems associated with invasive alien plants is tree-of-heaven *(Ailanthus altissima)*. This small-to-medium-sized tree not only grows fast, it grows where other trees won't. It's the tree immortalized in "A Tree Grows in Brooklyn," symbol of hope and "green growth" even in an urban environment. Unfortunately, this tree with almost tropical-looking compound leaves somewhat like a sumac's has a down-side, because it grows so quickly it outraces native species competing with it for sunlight and space. Its leaves and bark even contain a toxic substance that accumulates in the soil under the trees and may further inhibit the growth of other plants. Introduced to Philadelphia from Europe in the late 1700s, this plant is well-established in Virginia, growing in vacant lots, along highways, beside alleys, even in forested areas where gypsy moths or storms have made holes in the forest canopy. It's a significant problem in Shenandoah National Park where settlers once planted it as cover around their houses and where disturbed soil along Skyline Drive has provided it a corridor of travel.

It's not so much what tree-of-heaven *(Ailanthus)* does as what it doesn't do that concerns wildlife managers. "It's not a food producer," says VDGIF's Steve Capel. "And the trees don't get big enough to develop dens. The trees have a relatively short life, but nothing else can grow while they do. If Ailanthus becomes dominant on a hardwood cut-over, you may not get regeneration of oaks and hickories. It's cheating the area out of its natural diversity."

Common reed *(Phragmites australis)* is another invasive alien of particular concern to wildlife managers. This perennial wetland grass with thick, rhizomatous roots invades marshes where it displaces desirable plant species like wild rice, cattails, rushes, and cordgrasses. It provides little in the way of either food or shelter for wildlife and

Above: *Don't confuse common reed (page 20) with big cordgrass* (Spartina cynosuroides), *a non-invasive species that looks similar but has longer, narrower leaves and a sparser flowering structure.*
Left: *Great blue heron. Common reed grows so tall (3–13'), and so dense, that it interferes with shore birds' wading and feeding behavior. Great egrets, herons, king rails, and least bitterns have all suffered from the rapid spread of this plant.*
Below: *As an alternative to purple loosestrife, Capel suggests growing a non-invasive plant such as gayfeathers* (Liatris spicata).

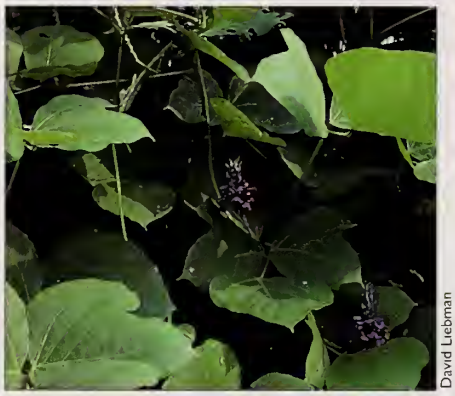
Hal Horwitz

grows so tall (3–13′), and so dense, that it interferes with shore birds' wading and feeding behavior. Great egrets, herons, king rails, and least bitterns have all suffered from the rapid spread of this plant. According to a recent study, common reed in the Back Bay Watershed has increased tenfold in the last decade, and it now covers over 1,000 acres in southern Virginia Beach and Chesapeake. "From the air it looks like the marshes have an advanced stage of chicken pox," says Capel, who, with other representatives of VDGIF and other agencies, is participating in the Southern Watersheds Common Reed Project to fight the problem.

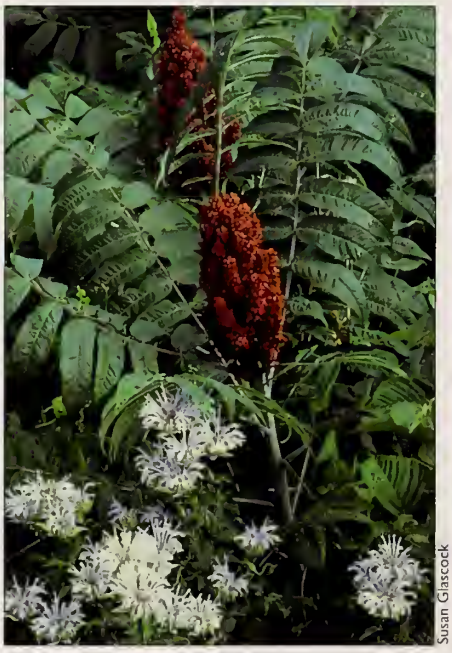
And then there's tall fescue (*Festuca elatior)*. This plant is relatively benign in a frequently mowed lawn where it's not allowed to go to seed, but where it has escaped into fields or been planted in pastures, it's a problem. "It's ruined old broomstraw fields as nesting and brood habitat for quail," says Capel. "Quail need to be able to find bare ground. But in old broomstraw fields where there used to be nesting places for quail—between a clump of broomstraw here and a clump ten inches over there—now there's fescue in between. Quail chicks can't walk around in fescue." Fescue also harbors an endophyte fungus that negatively affects wildlife. According to Capel, when rabbits eat fescue, they produce smaller, less healthy litters, have lowered body weight, and exhibit circulation problems making the rabbits susceptible to frostbite. Capel suggests that farmers plant forages other than fescue. "There are better cattle forages than fescue," he says. Warm season grasses like big bluestem, switchgrass, and Indian grass, for example, are less aggressive than fescue and don't form the troublesome, tangled mats of foliage that sod-forming fescue does.

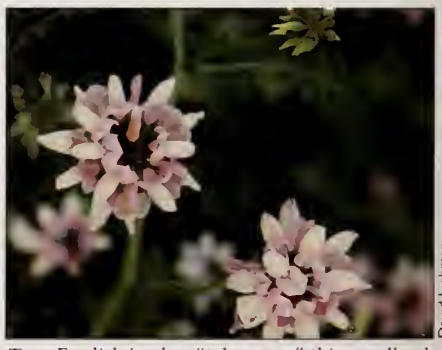
Capel and others suggest to landowners that where they have a choice between an aggressive alien plant and a well-behaved native that will accomplish the same purpose, choose the native. "There's no point in messing around with invasives

Hal Horwitz


David Liebman

Jerry Sims


Susan Glascock


David Liebman

Top: *English ivy has "taken over" this woodland area.*
Above left: *Kudzu, originally brought from the Orient as cattle food, still has scientists looking for a good use for this fast growing plant.*
Left: *Sumac's dull red fruit may be seen along many highways in the early fall.*
Above right: *Autumn olive was, until recently, touted as a wonderful wildlife plant.*
Above: *Crown vetch is now a common roadside plant in Virginia.*

when there's other stuff out there that's as good or better," he says. As an alternative to purple loosestrife, for example, he suggests growing gayfeathers *(Liatris spicata)* or false dragonhead *(Physostegia virginiana)*.

One can almost hear gardeners complaining, "But they're not the same as purple loosestrife!" Maybe not. But if keeping purple loosestrife out of our gardens means keeping long-billed marsh wrens in our wetlands, growing a different wildflower seems a small sacrifice to make.

Below: *Tall fescue* (Festuca elatior) *is relatively benign in a frequently mowed lawn where it's not allowed to go to seed, but it's a problem where it has escaped into fields or been planted in pastures. The problem with multiflora rose* (Rosa multiflora) *is that it won't stay where you put it. Birds spread its seeds, and it winds up in farmer's fields and pastures where it's an unwelcome pest.*

How to Avoid an Argument about Invasive Plants

Don't talk: That's the only way to avoid an argument about invasive plants. There are more sides to invasive plant issues than there are runners on kudzu. Here are just a few of the issues that you'll want to think about before demanding your neighbor remove some plant on the Invasive Alien Plant list from his property.

• Some alien plants are invasive in some parts of the state but not in others. Morrow's honeysuckle, for example, is a shrub honeysuckle that may be near the southern limit of its range in Virginia, so it's likely to be more of a problem in the northern and mountainous parts of the state than it is in the coastal plain. English ivy is another plant that is more problematic in some situations than in others. In a postage stamp urban backyard, it can make a great groundcover. But where it is allowed to grow up trees, produce berries with seeds, and spread into sensitive habitats, it's a bully and can outcompete native plants.

• Some invasive alien plants benefit wildlife but are still too aggressive to plant. According to VDGIF's

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Steve Capel, multiflora rose is probably the best wildlife plant there is. It provides shelter under its thorny canes and food in its nutritious hips (the fruit that follows the flowers). "Nothing else holds a candle to it as far as its attractiveness to birds," says Capel, "but I'd never plant it." The problem with multiflora rose is that it won't stay where you put it. Birds spread its seeds, and it winds up in farmer's fields and pastures where it's an unwelcome pest. (The Virginia Department of Agriculture and Consumer Services has declared multiflora rose a noxious weed.) Multiflora rose also spreads into sensitive habitats where more specialized plants and animals live.

• Some situations seem to demand an invasive alien. At least three of the plants on the invasive plant list—English ivy, autumn olive, and crown vetch—are plants that I planted on bare banks in Buckingham County thinking I was behaving as a conservationist. At the time I planted autumn olive, in fact, it was practically being given away by the Soil and Water Conservation Service as a great wildlife plant (Birds love its berries) and as a great plant for stabilizing erodible soils. Imagine my surprise when I later learned the Virginia Farm Bureau had a policy calling for the control or eradication of this shrub! Unfortunately, sometimes the very attributes that make a plant a good "land healer"—aggressive growth and the ability to grow anywhere, also make it a problem when it escapes the area it's healed. It's been sobering to see the places into which my autumn olive has spread—not just into neighboring fields but into the woods. I'm convinced I shouldn't have planted it, but at the time I planted it, I was neither aware it was a problem nor aware of alternatives. I'd like to replace it with shining sumac or black haw viburnum—two of the native plants recommended by the Virginia Native Plant Society as alternatives to autumn olive—but unfortunately, the horse is out of the barn. Not only can eradication efforts be tricky, but in some areas, wholesale destruction of invasive alien plants that produce berries can have a negative impact on local bird populations who have come to depend on them. Wildlife specialists recommend that when we remove invasive berry-bearing shrubs like autumn olive, we try to restore native berry-bearing shrubs in equal proportions.

Another confounding factor is that sometimes an aggressive alien plant will hold eroding soil better than a native plant that takes longer to establish. And often invasive aliens, precisely because they do grow so fast, are easier to find in nursery trade than slower-growing, and sometimes harder to propagate, natives.

It's a sticky wicket, this business of dealing with invasive alien plants. We could ignore the issue, just not talk about it, or face the fact that it's tricky and come up with the most balanced solutions we can. I'd rather talk, because I think an honest look at all the options will reveal the most workable, and healthiest, solutions in the long run.

For additional information, contact Steve Capel at VDGIF, 4792 Anderson Hwy., Powhatan, VA 23139 or call 804/598-3706. □

Nancy Hugo is a freelance writer and frequent contributor to Virginia Wildlife.

Purple Loosestrife Video Available

A Virginia Wildlife Educational Television Series video showing the threat purple loosestrife poses to Virginia wetlands is available from VDGIF's lending library. If you or an educational group to which you belong would like to borrow this video, call Lee Walker at 804-367-0486. Recommendations for controlling the plant's spread are also discussed on this video.

Top: *Johnson grass, like many aliens, is not easily suppressed.*
Middle: *Gill-over-the-ground is related to catnip and has a pronounced minty odor and taste.*
Above: *Bull thistle can grow into a dense impassable colony.*
Photos by David Liebman.
Above right: *Fouling outboard motors, hydrilla can be a costly pest.*
Right: *Japanese honeysuckle is so common that the countryside wouldn't be the same without it.*

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Troublesome Invasive Alien Plants of Virginia

Common name	Scientific name
Aneilima	*Murdannia keisak*
Asiatic sand sedge	*Carex kobomugi*
Beafsteak plant	*Perialla frutescens*
Bull-thistle	*Cirsium vulgare*
Canada thistle	*Cirsium arvense*
Chinese lespedeza	*Lespedeza cuneata*
Chinese yam	*Dioscorea batatas*
Common reed	*Phragmites australis*
Crown vetch	*Coronilla varia*
Curled thistle	*Carduus acanthoides*
English ivy	*Hedera helix*
Eulalia	*Microstegium vimineum*
Fiveleaf akebia	*Akebia quinata*
Garlic mustard	*Alliaria petiolata*
Giant reed	*Arundo donax*
Gill-over-the-ground	*Glechoma hederacea*
Hydrilla	*Hydrilla verticillata*
Japanese barberry	*Berberis thunbergii*
Japanese honeysuckle	*Lonicera japonica*
Japanese knotweed	*Polygonum crispidatum*
Johnson-grass	*Sorghum halepense*
Kudzu-vine	*Pueraria lobata*
Mile-a-minute	*Polygonum perfoliatum*
Morrow's honeysuckle	*Lonicera morrowi*
Mugwort	*Artemisia vulgaris*
Multiflora rose	*Rosa multiflora*
Oriental bittersweet	*Celastus orbiculatus*
Porcelain-berry	*Ampelopsis brevipedunculata*
Purple loosestrife	*Lythrum salicaria*
Purple loosestrife	*Lythrum virgatum*
Spotted knapweed	*Centaurea maculosa*
Tall fescue	*Festuca elatior*
Tree-of-heaven	*Ailanthus altissima*

Hal Horwitz

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TIPS FOR CHA

by Gerald Almy

For a unique kind of fishing give chain pickerel a try.

Slithering like a snake, the weedless silver spoon weaved its way seductively through the maze of blowdowns and tangled vegetation, trailing a fluttering chunk of pork rind in its wake. As the lure came into sight in the black, tannin-stained water, an ominous form suddenly ghosted up behind it. The lean, green fish almost touched the offering as he trailed it for an excruciating moment.

Then abruptly, three feet from the boat, the silver bait stuck in a tangle of weeds. For one crystalline moment, the triangle of lure, pickerel and angler were frozen. I didn't dare move, for fear of spooking the fish. But I didn't think it would strike the spoon hung up in the weeds.

Wrong.

With a flash of predatory savagery too quick for the eyes to follow, the fish coiled its body like a snake and lunged at the snagged lure in a flash. Hooking itself, the fish began to fight chaotically. Water sprayed everywhere, but luckily the drag was set light and eventually the 3 pound-plus pickerel tired itself enough for me to reach down, gingerly slip the hook free and watch it sink back into the dark, tannin-colored waters of the central Virginia pond.

That was just one of over a dozen pickerel a friend and I caught that day on the ponds on the A.P. Hill Military Base that are open for public fishing. But it was by far the most memorable. It was also a prime example of the quality fishing Virginia has for this slender, neglected gamefish—*Esox niger*.

With bass, bluegills, crappies, and trout all biting well at this time of year, many people overlook the mysterious chain pickerel. That's a shame, because they are good fighters, offer a unique kind of fishing and the best chance by far that Virginians have of landing a fish of the Esox family. A muskie can certainly be caught—usually with days of ef-

fort—and the state has several waters that offer the chance for a northern pike. But if you concentrate on pickerel, you can almost always catch several in a day. Sometimes several dozen is not out of the question. My highest tally on chainsides—all of which were released—was 33, caught with one other person. Five to 10 is a fairly typical catch for a day's pickerel fishing.

Though the world record weighed over 9 pounds (caught in Georgia in 1961), there's a story that a 12 pounder was once caught by a commercial netter in New Jersey. The Virginia state record is a hefty 7 pounds, 8 ounces, caught in Lake Cohoon. A 4 pounder qualifies for a citation. If you want to return the catch to the water unharmed, a 24 incher merits a release citation. An average pickerel in most waters weighs 1–2 ½ pounds.

Some of the better pickerel waters in the central and western part of the state would include the Rapidan River, Lake Moomaw, Anna, Douthat Lake and the ponds and lakes of the Quantico military base. Douthat Lake, noted for its trout, has produced pickerel weighing as much as 7 pounds, 6 ounces in the past.

Top pickerel waters in the eastern region would include Chickahominy River and Lake, Diascund, the ponds of A.P. Hill, the Nottoway, Mattaponi, and Blackwater rivers, lakes Western Branch, Little Creek, Meade, Burnt Mills, Whitehurst, Prince, and Cohoon, plus many smaller public and private fishing lakes in the tidewater region. The fish thrive in dark, tannin-stained lakes, and most years Chickahominy is the top producer of citation-size fish.

As waters cool in fall, look for the fish moving back into shallow water again. Pickerel in Virginia's lakes, ponds, and rivers can be caught on bait, lures, and flies. Bait fishing is perhaps the most consistently reliable method. Chainsides is a piscavorous species, meaning minnows and other small fish comprise the bulk of its diet. It's not surprising that a live, struggling minnow would work as well as it does.

I've caught pickerel on both store bought and creek-seined minnows and haven't found they're very particular in most cases. In fact, sometimes I think the silvery flash of shiners outperforms the more dull hues of most minnows. The best size is 2–4 inches. It's important not to use too large of a bait, since most pickerel only weigh a couple of pounds. And big fish will hit even the smallest minnows if they're in a feeding mode. I've caught four pounders on minnows barely an inch long when fishing for crappies.

N PICKEREL

Before going into tactics to use on pickerel, it's important to focus in on where these fish are most abundant. Unlike bass and bluegills, you can't go to just any lake or river in the state and catch them. With a few notable exceptions, the majority of the best pickerel waters are in the eastern (tidewater) portion of the state, with a fair number in the piedmont and a smattering in the mountains. Larger lakes in the piedmont and mountain regions often produce excellent fishing for pickerel during the first few years after they are impounded when cover is abundant in the shallows. Once that dies off, their numbers typically decline, but usually they don't totally vanish. Lake Anna is a prime example. During its early years in the 70s you could catch a dozen or more pickerel a day. Now it's still possible to catch some fish, but they aren't nearly as abundant.

Pickerel spawn early. They've completed mating now and packing on calories is their major occupation. In spring the fish can be found in water as shallow as two feet. Now it's preferable to look for the lean, green fish in deeper water— 4–8 feet in ponds, 6–20 feet deep in larger reservoirs.

Since pickerel water is often loaded with tangles, the best way to fish with live bait is

Chain pickerel; illustration by Michael Simon

to use a small bobber to keep the minnow suspended above potential snags. Use one or two small split shot 12 inches above a size 1, 2 or 4 bait hook. Impale the minnow through the lips or just below the dorsal fin lightly in the back. If the water is particularly snag-laden, go with a weedless hook.

Chain pickerel display two distinct feeding modes. One is that of the lone predator that hangs tight to cover, waiting in ambush for prey to swim within striking range. These fish hold near weedbed edges, pockets in vegetation, alongside logs or brushpiles, at the edge of dropoffs, next to docks and bridge pilings or in eddies of rivers. When an unwary minnow or panfish swims within lunging range, the pickerel contorts its body and hurls itself at the prey. Gripping the baitfish in its backward-angling teeth, the fish then skulks back to cover and wolfs downs its meal.

The second common feeding mode is that of cruising packs of pickerel. These fish rove in loose bands in deeper, open water. Slow pools and backwater sloughs off rivers, coves of lakes and deep midsections of ponds are their favored haunts. Pickerel are prime targets for the minnow angler in both feeding situations, but different tactics are required.

For moving schools of fish in open water, drift fishing is the best strategy. If the wind isn't blowing, you can use an electric motor to slowly troll through moderate depths in spring, deeper water when summer's heat sets in. Use two rods and adjust the bobbers to different depths until you find where the fish are hanging, then set them both at that level. Let the bobber out 20–40 feet behind the boat and make sure you move slowly, whether trolling or drifting. Another alternative is to cast and gently retrieve the minnow.

For pickerel waiting in ambush next to cover, use the same bobber-split, shot-hook rig, but simply cast it out next to structure and wait for several minutes. If a pickerel is there, a bite won't be long in coming. After five or 10 minutes, reel in and cast to another likely piece of cover.

One myth that needs refuting about bait fishing is that pickerel cannot be hooked until a long time after they take the minnow. Some writers used to even recommend waiting until the fish swam off with the bait, the bobber came up, and then it went down a second time. This sometimes works, but other times the pickerel will end up stealing the minnow and spitting the hook or swallow the hook deeply, making it difficult to release unharmed.

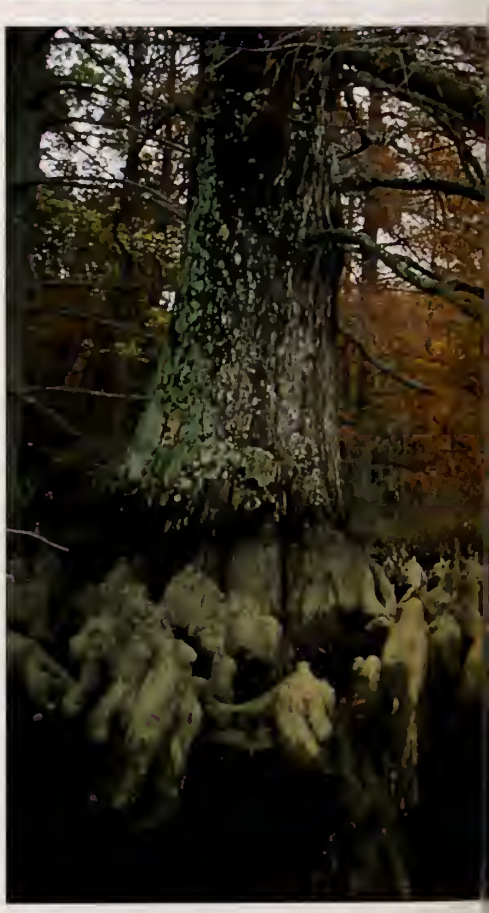
You may miss a fish or two, but the best policy is to wait just six or eight seconds. Tighten up any slack in the line and when you feel the fish's weight, immediately reel hard and sweep the rod to the side to set the hook. With this method pickerel will almost always be hooked lightly in the mouth and can be released unharmed.

Here's one final baitfishing tip: if strikes are slow in coming, try substituting a shad dart or small colorful jig for the bait hook. Pierce the minnow through the lips onto the jig, then fish this just like you would the normal minnow rig. Sometimes the extra flash of the jig or dart seems to stir the predatory impulses in pickerel and draw more strikes.

Lure fishing for pickerel can be quite rewarding if the fish are in an aggressive or at least neutral mode. (If they're sulking and off their feed, a live minnow seems to be the only answer.) A wide variety of artificials will take these lean, chainsided fish. Among the best bets are spinnerbaits, spinners, spoons, jigs, grubs, plastic worms, buzzbaits and thin-minnow plugs.

Though they are aggressive fish, pickerel can easily be spooked if you use too large of a lure. Generally small models of all of the offerings listed above are best. I had this lesson impressed on me one day when I was fishing the shallow, clear water of Lonesome Gulch Pond in central Virginia. Casting out a heavy spoon with a long pork rind strip on it, I soon found fish. But they weren't striking my lure, they were running from it! Impressive V-wakes creased

Gerald Almy



Pickerel water is often loaded with tangles. ***Top:*** *A stringer of pickerel from Lake Moomaw.* ***Right:*** *Cypress trees on Chickahominy Lake, great pickerel water.* ***Far top right:*** *Good choices for pickerel are weedless spoons, plastic worms, buzzbaits and spinnerbaits. Photo by Gerald Almy.* ***Far bottom right:*** *Live minnows are the best baits for pickerel. Use 2 to 4-inch minnows. Photo by Gerald Almy.*

the thin water as fish after fish fled when the large spoon and pork combination splatted down near them or wobbled too close.

Taking my cue from this, I rested the area, scaled back down to a lure half the size of the one I'd been using and put a tiny plastic trailer on it. This time around I found myself battling pickerel, instead of flushing them into deep water like a covey of frightened quail.

Granted, there are times when you can get away with large lures, particularly in deep water. But for the most part, smaller offerings are best— ¼ to ½-ounce spoons and spinnerbaits, 3–4 inch thin minnow plugs, 4–6 inch plastic worms and 2–3 inch grubs. Light action spinning gear with 4–8 pound line is best suited for throwing such lures, and you can forget the wire leader. Occasionally the fish's sharp teeth will slice through monofilament, but this happens very rarely and wire leaders simply impede the actions of lures too much to be useful.

Pickerel vary from day to day as to the lure speed they want. Some days a snappy retrieve works best—especially with spinnerbaits, spoons and buzzbaits. With spinners, minnow plugs, grubs, jigs, and worms, moderate and even slow retrieves can score better. Experiment any given day on the water and see what the fish's preference is.

Don't overlook adding "sweeteners" to these lures. These can include plastic twister tails, strips or chunks of pork rind, even a thin, tapered strip of belly meat cut from a pickerel you kept or a yellow perch. The extra "meaty" appearance and different action these trailers give can sometimes draw strikes when the plain lure fails to score.

Fly fishing is seldom employed by pickerel anglers, but it can be a rewarding way to take this gamefish. A rod of 8 to 9 feet taking a #6–8 weight-forward or bass taper floating line with a 5–10 foot tapered leader and 6–8 pound tippet makes a good outfit.

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If fish are in shallow water lurking near weeds or logs a popper or deer hair bug can draw lunging strikes. Lay the fly down softly, let the ripples settle, then twitch it once. Wait 10 or 20 seconds, then begin a slow pumping retrieve. Unlike bass, which usually strike immediately or not at all, pickerel might follow a surface bug halfway back to the boat before striking.

More often than not, streamers are a better bet for fly fishing than topwater bugs. Patterns such as the Zonker, Matuka, Clouser's Minnow, Bead Head Woolly Bugger, Mickey Finn and Black Nosed Date are excellent in sizes 1/0 to 4. Cast to cover and retrieve with sharp strips of line, 6–18 inches at a time, pausing between pulls. Keep the rod tip low to the water so the spurts are imparted directly to the fly and there's no slack when a fish takes. If fish are hanging in deep water, you can either switch to a sink-tip line or add a split shot or two a foot ahead of the fly to take it lower in the water column.

Whether to keep pickerel or not is a choice each angler has to make for his or herself. If you decide to, the limit is 8 fish, no minimum size. (On Buggs Island and Gaston there is no daily limit.) Pickerel flesh is actually quite light and tasty, but the Y-bones these fish have make it something of a chore to either eat around them or fillet them out. Because of that many pickerel fishermen release their catch unharmed. But if you want to keep a few for the pan, it won't hurt the fishery. They're prolific breeders and the fact is, very few anglers in Virginia go after them. Maybe it's time to change that.

Don't give up popular species like bass, trout and panfish, but give chainsides a try this year and I think you'll agree there's something uniquely appealing about this long, green fish with the baleful eyes and razor-sharp teeth. □

Gerald Almy has been a full-time writer for over 20 years. He is currently a hunting and fishing editor on the staff of Sports Afield.

Journal

Management Activities in Bath County:

A variety of projects are underway in Hidden Valley on the Warm Springs Ranger District, of the George Washington and Jefferson National Forest. Beginning in April, the Department of Game and Inland Fisheries and Forest Service personnel will take the first steps in repairing the water control structure of a waterfowl pond in Hidden Valley. Originally a cooperative effort funded by Ducks Unlimited's M.A.R.S.H. Program, the levy and riser pipe that controlled water levels in the pond, were damaged by a flood in the spring of 1994. John Pound, Wildlife Biologist Assistant on the area, said that the first step was to rebuild the levy, then seed it to grass to stabilize the banks. Later in the year, the water control structure, consisting of two 42-inch riser pipes will be installed.

The upper pond of the same project was not affected and remains intact, holding an abundance of water. On a spring field trip to the area, a pair of black ducks, a pair of wood ducks and four mallards were "jumped" off of the pond. Pound said that resident Canada geese also use the pond. This marsh occupies a place up against Cobbles Mountain and consists of flooded timber, marshy vegetation and a dome-shaped nesting island. Wood duck boxes have been erected in the timbered areas and Pound says that they are being used more regularly every year.

One side of the upper pond was planted to warm season grasses. Pound said that this was was in conjunction with the Warm Season Grass Project where one of four plots were chemically treated, burned off and planted in May of 1995 with a seed drill. In about two years, the native grasses will become established, which will benefit both quail and turkeys, especially as brood areas. A few quail coveys inhabit this pleasant valley, and the warm season grasses will provide better food and cover.

Another project that Pound is involved in is to establish a shelterbelt along part of the road into Hidden Valley. About a 100 X 25 yard belt of white pine, crab apple and chestnut is being established as a snow fence to protect the road from drifting, and to provide habitat for wildlife, but also to act as a screen to prevent shooting from the road. Not too far away is a National Forest campground that is not discernible if a hunter were not familiar with the area. The natural screen will serve to prevent a possible accident.

Hidden Valley is located west and north of Warm Springs off Route 621, north from Route 39. The Jackson River flows through the area, which is a fairly sizeable valley with lush grasses and wooded stream banks up against a mountain on one side. This is the area where the film, "Sommersby" was filmed and for awhile had a small make believe town built there for the various movie sequences. Across the Jackson is Warwickton, the old mansion that is now a bed and breakfast that was featured as the main household in the movie. The Jackson River is stocked regularly in spring and is a popular fishing spot for trout anglers. □

Coursey Springs Rearing Station Keeps Busy

Not too far away in Bath County near Williamsville, the Coursey Springs Trout Rearing Station continued their busy schedule of activities. June marks the end of normal stocking of streams but they and other rearing stations have had a busy winter and early spring. Despite the cold, snow and flooding, they maintained a rigorous stocking schedule for the first year with no scheduled opening day. In years past, the trout season would close February 1 for preseason stocking, then reopen again on the third Saturday in March. Now there is a continuous open season.

At Coursey Springs, which rears about 500,000 to 600,000 trout, Hatchery Superintendent Bradley Mawyer reported that they are moving trout out as fast as they grow to stocking size. They are replenished each spring with well started fingerling trout primarily from the Paint Bank Hatchery. Trout are transferred to Coursey Springs when they are about 2 ½ to 5 ½ months old--about 1 to 4 inches long.

The fish are put first into the more substantial concrete ponds on the upper end. As they grow, they are moved downstream to the lower ponds. By the time they reach the lowest ponds near the outlet to Spring Run, they are 10 to 12 inches in length and ready for stocking. These fish are then seined up, netted and put into aerated portable tanks on pickup trucks, or on a large tank truck, and driven to the streams for stocking. Coursey Springs is responsible for streams on the west side of the mountains from Alleghany County north to Frederick County., as well as Douthat Lake/Wilson Creek Fee-Fishing Area throughout the summer.

January floods caused only minimal damage, according to Mawyer. One section of chain link fence was knocked down and the gravel from the road, close and parallel to the Cowpasture River, was washed away. Loss of trout was minimal as well, Mawyer said.

Coursey Springs is located near Williamsville on Route 678 in Bath County. To the north is the Bullpasture Gorge. It can be reached by taking Route 250 from Staunton to McDowell, then south on Route 678; or from Route 39 near Millboro Springs, then North on Route 678. Visitors to the rearing station and anglers fishing Spring Run below the station are welcome from 8 a.m. until 3 p.m., when the gates close. □

Anadromous Fisheries Update

The striped bass (rockfish) have made a phenomenal recovery since the 1989 ban. A coalition from VDGIF, the U.S. Fish & Wildlife Service, VMRC, and VIMS have worked closely to restore populations. Enforcement of regulatory management, and the VDGIF experimental hatchery restocking program has rebounded populations close to the 1960s levels. VDGIF senior fisheries biologist, Dean Fowler, reports only the stock of older females have not fully recovered. Stripers over 12 pounds are usually females.

Several factors including overfishing, habitat loss, and habitat degradation have led to the gradual decline of anadromous fishes, including the rockfish, American shad, hickory shad, river herring, alewife, and the Atlantic sturgeon. Because of the resounding success of rockfish restorations, similar efforts are currently underway in aiding the American shad.

VDGIF is the lead agency in a cooperative effort in reestablishing the American shad with VMRC, U.S. Fish & Wildlife Service, commercial fishermen, and the Pamunkey Indians. Gill netted shad are "milked" of their eggs then fertilized. Project coordinator and fisheries biologist, Tom Gunter, reports the overall survival of eggs to fry being stocked at 52 percent, which is very good. Millions of hatched fry are being raised at the King and Queen hatchery until 21 days old, then released into the rivers previously abundant with American shad.

Fish Passage Coordinator, Alan Weaver, indicates Richmond's Bosher's Dam fish ladder design is being finalized, and should be under construction in 1997. Once functional, habitat access will be restored to anadromous fishes for an additional 140 river miles upstream to Lynchburg The formula for success has been multi-agency coordination, regulation enforcement, habitat restoration, and restocking aided by private and corporate assistance. □

Talking Turkey Lures Them In

In order to lure more women into outdoor sports the Virginia Department of Game and Inland Fisheries (VDGIF) held its first "Women in the Outdoors" turkey hunting workshop this past March 29-31 in Wakefield, VA at the Airfield Conference Center. The chance to learn how to "talk turkey" seemed too good to be true for some of the 32 women from across the state who attended the workshop.

The weekend courses kept students occupied from sunrise to sunset. Basic identification, turkey calling and hunting safety were just a few of the challenges that had to be mastered. Ann Skalski who coordinated the event for the VDGIF said she "wanted a beginner to walk out of our workshop with the skills that would enable them to go out into the woods."

Top #1: *Game Warden Jim Moore (left) points out identifying characteristics of a mature male turkey.*
#2: *Students learned first-hand the importance of shooting safety.*
#3: *Ann Skalski (right) demonstrates how to use a box call to attract a gobbler.*
Above: *Becky Norton Dunlop, Secretary of Natural Resources and William L. Woodfin, Jr., Director of VDGIF attended the workshop.*
Left: *Blue skies and fresh air made for the perfect classroom as students learned some of the little details that make turkey hunting fun.*

Photos ©Dwight Dyke

Safety

by Col. William Antozzi, Boating Safety Officer

River Travel

Virginia has many miles of boatable water. In fact, it is a very wet state with at least 22 major rivers, four big lakes and many smaller ones.

Each river has different characteristics and can be a challenge to boaters. Moving water is a heavy element and has tremendous power. Water always flows downhill because of gravity and in rivers, that power, plus great mass and weight can be dangerous.

Water, in the center of a river, flows smoothly unless impeded by rocks and other obstacles. It flows faster near the top, but at the very top, when it comes in contact with air, friction with the air slows it somewhat. Water along the banks is slowed by friction with the banks resulting in eddies.

Because water is heavy it responds to the physical laws of gravity and inertia. When a river turns, water piles up on the outside of the turn and it is usually deeper there. If the bend is sharp enough, water and debris may churn violently, making it a place to avoid.

There are additional dangers with which a boater should be familiar. As a river flows it comes into contact with a variety of obstructions. Islands, bridge-piers and rocks are all potential trouble, simply because they don't move and water does. If the water is moving fast enough, a boat coming against those obstructions can be held fast to their upstream sides. Once a boat, raft, etc., is pinned against those objects escape can be very difficult.

Currents flowing around solid objects which are partly above water create eddies behind them downstream. The eddies actually flow upstream toward the obstruction. Of course, the larger the object impeding the water flow, the bigger the eddy. The water flowing downstream always moves faster than the upstream flow of eddies. This differential can spin a boat and possibly capsize it.

Another river danger is a "strainer." Strainers are made up of fallen trees, brush and debris collected between other objects. Water flows through the strainers but boats and people do not, resulting in entrapment and pinning against strainers.

A third hazard is low-head or low-level dams. Water flows over fixed crests or walls which are normally man-made. Lowhead dams do not need a deep drop to be dangerous. Hazards result from going over dams and from the backwash at the foot of such dams. The backwash, which can be very powerful is called hydraulic or reversal action. Boats, people, and other objects can be trapped and sucked under, then resurface only to be dragged back to the dam and sucked under again. Boats and people have been caught in hydraulics many times. Fatalities often result.

Spring rains can bring high water and flooding which complicates everything because the water has more power, covers hazardous obstacles and is cold. Boating on rapidly moving water requires skill and knowledge. Good boat handling is mastered through thorough knowledge of the various forces involved coupled with working skills acquired through practice. For instance, going against the current is generally less difficult than going with the current. Consequently, special caution must be used in descending a current when under power. A fast current can render boats difficult to control because it reduces the ability to steer. The result could be that the boat would come upon obstacles too fast for a timely reaction.

Because boat handling on rapidly moving water is a complex skill that requires extensive knowledge of boat action and reaction plus a complete understanding of water power and currents, inexperienced boaters should travel with skilled boatmen until they learn to cope with fast-water characteristics. Learning from another boater's experience and advice can make fast-water boating safer and consequently more fun. □

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June Afield

by Jack Randolph

Hey Kids! The first weekend in June is "Take Your Parents Fishing Weekend." You say, "Let's all go fishing this weekend," and don't take no for an answer.

You see, there is no excuse to stay home on the weekend of June 1 and June 2 because fishing is free! On those two days no one in your entire family needs to have a fishing license to fish in freshwater, except for fishing in stocked trout streams where a regular fishing license and a trout license is required. You probably have read articles urging folks to take a kid fishing for years. Now it's payback time, it's a time to take your parents fishing. You couldn't do them a better favor and you couldn't do it at a better time.

It all comes together in June. I remember when I fished in Europe about thirty years ago, the anglers there placed a great deal of stock in the condition of fish after spawning, something we American anglers seldom consider. The German trout fisherman, in particular, felt it took a month or so for the trout to recover from the spawning effort. To some extent the same must be true of our spring-spawning fish and by June the fish should be just about back in fighting trim.

June is a real good month to wave flyrods at things. In the lakes and ponds bass and bluegills are fair game for a man with a fly rod and a small popping bug. On the smallmouth bass rivers the bass, rock bass and sunfish are all suckers for a well presented fly.

This is a good month for catching catfish. In the James, in Richmond and the fast water above the city, anglers catch big flathead catfish, generally using a live bream for bait. In the tidal reaches below Richmond and in the Rappahannock above Port Royal anglers fishing at night catch blue catfish on cut gizzard shad or bream heads. Cut eel is also a popular catfish bait. As a bonus, the tidal water striped bass season is open until the 15th of June for stripers measuring at least 18 inches, but not more than 28 inches. All of Virginia's tidal waters hold striped bass at this time of the year and frequently stripers hit baits aimed at catfish.

©Dwight Dyke

Last June, while fishing in the James River for croakers off of Smithfield, about 6-feet worth of sturgeon cleared the water within a few feet of the boat. The green and cream colored fish offered a sight I'll not soon forget. When the first settlers came here sturgeon were so plentiful in the James they were called "Charles City bacon."

A couple of years ago a couple was fishing from a boat in the Mattaponi River when the husband hooked a big fish. According to Allen Chennell at the A&J Country Store in Aylett, when the man saw the fish he exclaimed, "A shark with warts!", and he cut his line. His "shark" was probably a sturgeon.

At present the National Marine Fishery Service considers the Atlantic sturgeon population in such poor shape, they believe it could collapse. They are calling on coastal states to give the fish more protection. Fortunately, Virginia is ahead of the pack with a complete prohibition against taking sturgeon.

In the Chickahominy Lake this month, bream fishermen enjoy excellent fishing using live grass shrimp for bait. Eddie Allen at Allen's Recreational Park on the lake catches the shrimp on the Pamunkey River and sells them to fishermen at his camp. This is probably the only place in Virginia where grass shrimp are used with any regularity, but elsewhere these tiny shrimp, highly sought after by a wide variety of fish, are used effectively for striped bass, gray trout and yellow perch. A great method for stripers and trout is to chum sparingly with the little shrimp and drift baited hooks on live lines from the boat. I have seen striped bass as long as my arm rise to a drifting shrimp and take it as delicately as a trout slurps a drifting insect.

Because of our severe winter the schools may be closing a little later this June than normal, but the month won't be far gone before we anglers will have to give way to young people on water skis and jet boats. But we can surrender to them the open waters while we retreat to the shallower coves, small ponds. smallmouth bass rivers or to fishing at night. After all the summer belongs to them, too. Hopefully, they'll give fishermen equal respect. □

Habitat

by Nancy Hugo

Mulberry

It's summer, white sheets are flapping on the line, and the children are building a tree house in the mulberry. Soon you'll try to make mulberry jam—a laborious affair that results in a ruined pan and ½ cup of jam. Soon, too, the sheets will be stained red with the droppings of birds who, like you, have been feasting on mulberry fruit. Then time will pass, the sheets will be in the drier, the children will grow up, and the mulberry will begin to seem too trashy for a self-respecting suburban backyard. Even if you don't cut it down, you'll begin to wish it would disappear—until more time passes, and you realize that old mulberry has more to offer than any of the fancy, fruitless ornamental trees being sold in nearby nurseries. "A bird cafeteria par excellence" is what naturalist John Dennis calls our native red mulberry *(Morus rubra)*, and he's not overestimating the popularity of this tree with songbirds.

The red mulberry has a long fruiting season—from June to August, but it is in early summer that songbirds most appreciate this tree as a source of food for hungry young. Dennis once counted 20 species feeding in a single tree when the fruit was ripe. Researchers at Cornell also list mulberry among the best trees for nesting, and wildlife food gurus Martin, Zim, and Nelson note that a mulberry or two near your home will be sure to attract songsters.

What's interesting about this is that if you went out and tried to find a native, fruiting red mulberry in a nursery, you'd have a hard time finding one. There's a mail order source in Oregon (Forestfarm 541-846-7269), but most of the mulberries offered in local nurseries are fruitless varieties—developed, no doubt, to rid us of those offending berries that stain sidewalks and sheets. Habitat managers and backyard gardeners interested in benefiting wildlife have more pressing problems—like keeping songbirds around—than red stains, however, so we're learning to re-love these native trees.

Mulberry trees get about 40–70′ tall with a 40–50′ spread, and they often have trunks that divide near the ground with thick, spreading branches—perfect for tree houses. Photo by Nancy Hugo.

They're usually found growing as single trees or as small scattered stands on rich, moist soils. The trees get about 40–70′ tall with a 40–50′ spread, and they often have trunks that divide near the ground and thick, spreading branches—perfect for tree house foundations. The red mulberry's leaves, which turn yellow in the fall, are usually about 3–5″ long and 3–4″ wide and they have edges that look like they've been cut with pinking shears. Sometimes they are ovate with a sharp point at the end; and sometimes, especially when they grow on young twigs, they are lobed (have deep cutout curves along their margins). Some have 3–5 lobes, other have a single lobe on one side.

The mulberry's berry-like fruit is red, turning to dark purple, then almost black when ripe. There's more seed than flesh in each "cell" of the berry, but, while this makes mulberry jam making a challenge, it is evidently no problem for birds who get as much nutrition from the seeds as from the fleshy part of the fruit. Other animals that relish sweet, juicy mulberries include raccoons, opossums, squirrels, and chipmunks.

We have both red and white mulberries in Virginia, but only the red mulberries are native. White mulberries, which have naturalized here, were introduced from China in a effort to start silkworm production in the southeast (silkworms feed on mulberry leaves to make their cocoons which are spun of silk thread), but silkworm production was never very successful in this country (settlers found higher profits could be made from tobacco). As early as 1610, William Strachey reported from Jamestown that settlers had tried to grow silkworms on red mulberry leaves, too, but the worms "fell sick" and the effort proved unprofitable.

In his *A Natural History of Trees*, Donald Peattie reports that red mulberries did have a use in the early American clothing industry, however. Choctaw Indians, he reports, wove cloaks from thread made from the bark of young mulberry shoots. Native Americans also reportedly used mulberry wood for making bows when witchhazel and hickory were unavailable.

All this, I hope, suggests that this native tree has more going for it than its reputation as a trash tree would suggest, and that you might want to take a new look at that old mulberry in the backyard. □

Recipes

By Joan Cone

Snapping Turtles Aren't Pretty - But They Are Delicious!

No animal in Virginia is uglier than a snapping turtle. Out of water, they are vicious and capable of inflicting severe injuries. Under water, apparently realizing nothing can hurt them, they are quite gentle. Pro turtle hunters can reach down, grab a huge snapping turtle by the tail and put it in a box. Don't you try this! As with some other animals we humans consider homely, snapping turtles excellent to eat. Extracting the meat takes experience, and the way to go is rely on Hazelwood Brothers in Lanexa or some other turtle processor who sells turtle meat ready for cooking. As each part of the turtle has its own texture and flavor, you are sure to find them interesting gourmet fare. Here is a first rate turtle meal for you and your guests.

MENU

Snapping Turtle In Crockpot
Caesar Salad
Double Bran Lemon Muffins
Poppy Seed Cake

Snapping Turtle in Crockpot

1 to 2 pounds turtle meat
Salt
¼ cup cream sherry wine
2 cups water
2 teaspoons instant minced onion
2 stalks celery, cut into l-inch pieces
2 carrots, sliced
8 small unpeeled red potatoes, halved
⅛ teaspoon dried basil

Salt turtle meat and place in crockpot. Add remaining ingredients. Cover and cook on LOW heat for 6 to 7 hours or until turtle meat is tender. Remove meat from pot and cut into bite-size pieces. Return meat to crockpot, cover, and continue cooking on LOW heat for an additional 1 or 2 hours or until vegetables are done. Serves 3 to 4.

Caesar Salad

1 ½ teaspoons anchovy paste
2 medium cloves garlic, pressed
1 tablespoons drained capers (optional)
¼ cup olive oil
Juice of ½ lemon
1 teaspoon Dijon mustard
1 teaspoon Worcestershire sauce
1 bag (10 ounces) Italian blend salad mix
1 cup croutons
2 tablespoons grated Parmesan cheese

For dressing, blend anchovy paste, garlic and capers in salad bowl. Add olive oil, lemon juice, mustard and Worcestershire sauce. Whisk until well blended. Add salad mix to dressing and toss. Sprinkle with croutons and Parmesan cheese. Serves 4.

Double Bran Lemon Muffins

1 cup 100% wheat bran cereal
½ cup oat bran
Grated peel of 1 lemon
½ cup fresh squeezed lemon juice
½ cup nonfat milk
1 ¼ cups flour
2 teaspoons baking powder
½ teaspoon baking soda
¼ cup firmly packed brown sugar
2 egg whites
¼ cup honey
¼ cup vegetable oil

In bowl, combine cereal, oat bran, lemon peel, lemon juice and milk; let stand 10 minutes. In large bowl, sift together flour, baking powder and soda; stir in brown sugar. In small bowl, beat egg whites until foamy, add honey and oil. Stir egg mixture into bran mixture; mix well. Add to dry ingredients all at once; stir just until dry ingredients are moistened. Quickly spoon into 12 paper-lined 2 ½ x 1 ¼ inch muffin cups; fill about ⅞ full. Bake at 400° F. for 20 to 23 minutes. Makes 12 muffins.

Poppy Seed Cake

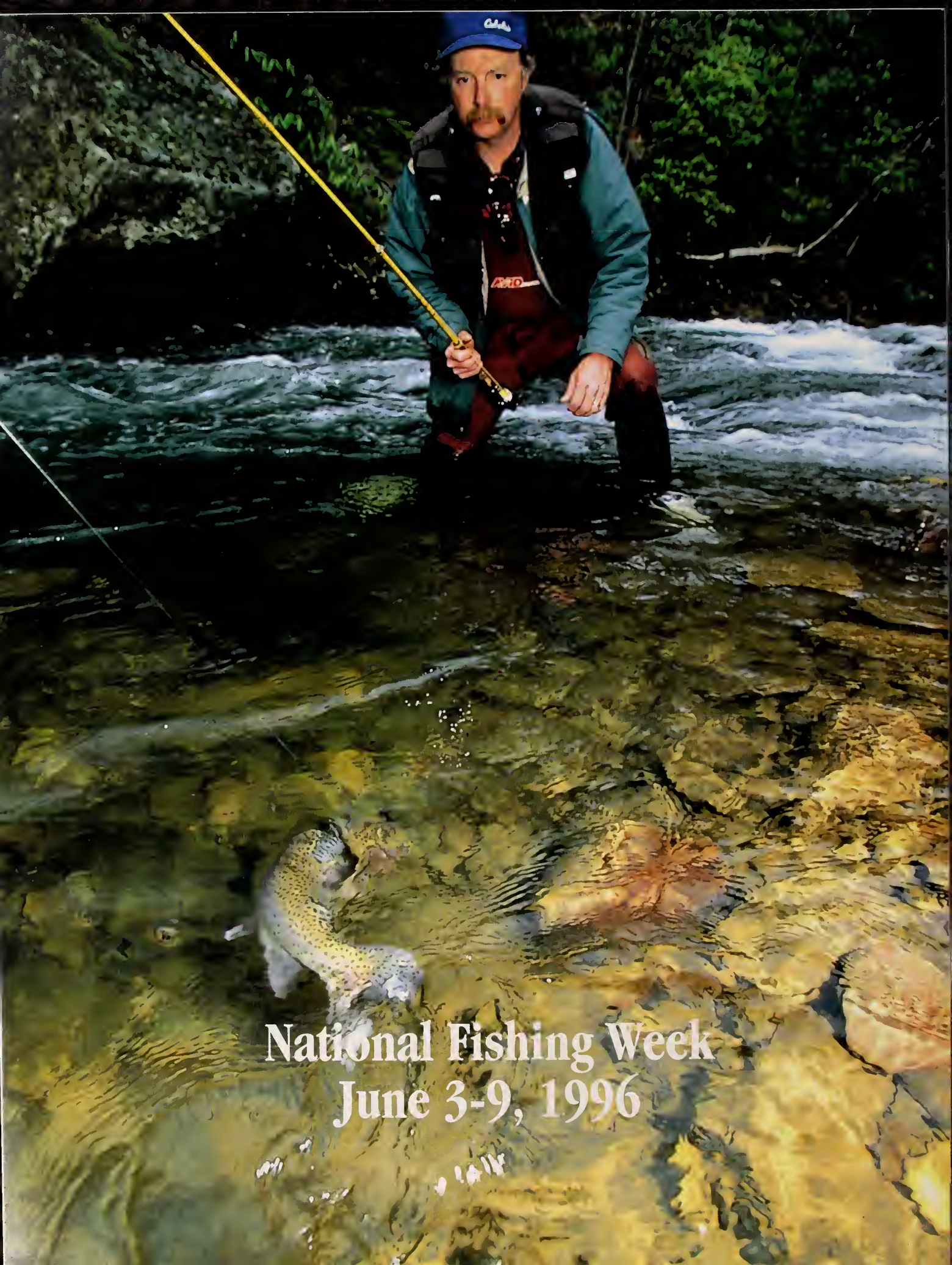
Cake

2 ¾ cups sugar
1 cup vegetable oil
3 large eggs
1 ½ teaspoons vanilla
1 teaspoon almond extract
3 cups flour
2 tablespoons poppy seeds
1 ½ teaspoons baking powder
½ teaspoon salt
1½ cups milk

Glaze

1 cup powdered sugar
¼ cup orange juice
¼ teaspoon almond extract

For cake, preheat oven to 350° F. Grease and flour a 12-cup bundt pan. Using electric mixer, beat first 5 ingredients in a large bowl to blend. Mix flour, poppy seeds, baking powder and salt in medium bowl. Stir dry ingredients alternately with milk into sugar mixture, beginning and ending with dry ingredients. Pour batter into prepared pan. Bake until tester inserted near center comes out clean, about 50 minutes. Cool cake in pan on rack for 10 minutes. Meanwhile, to prepare glaze, whisk all ingredients in small bowl to blend. Turn out cake onto rack. Spoon glaze over warm cake. Cool cake completely. Slice and serve. Makes 12 servings. □


National Fishing Week
June 3-9, 1996